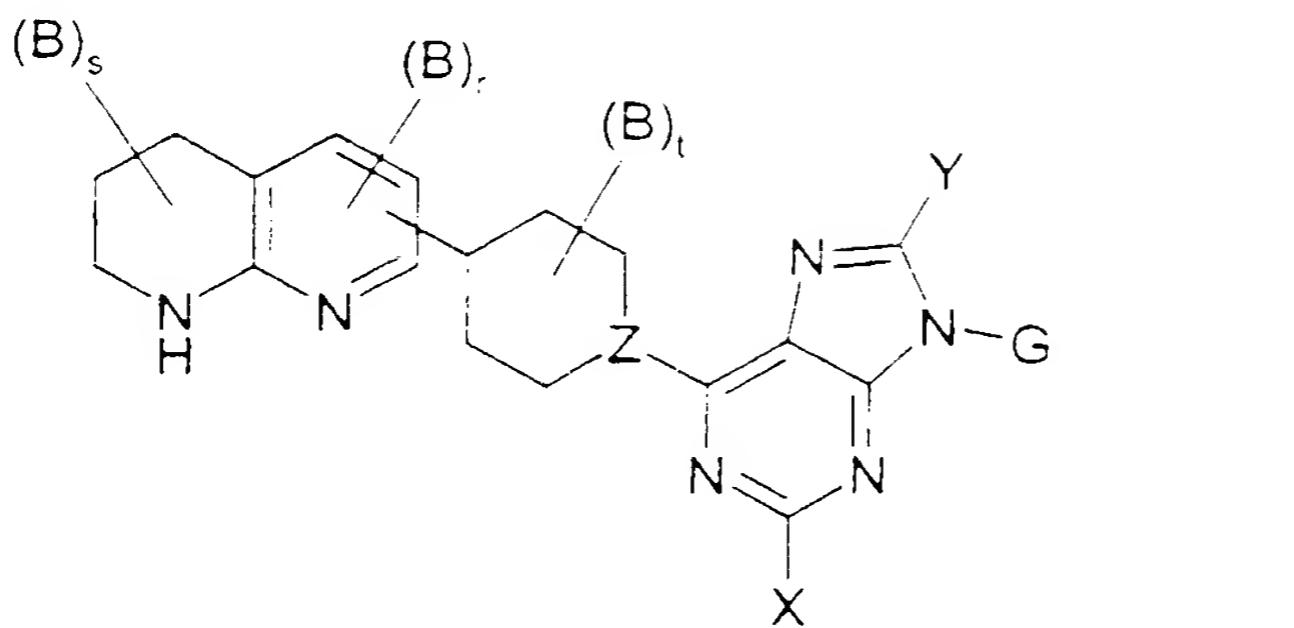


Patent claims

1. A compound of the formula I,



5

in which

G is a residue of the formula II

10 $-(CR^1R^2)_n-A-(CR^1R^2)_m-(CR^1R^3)_l-(CR^1R^2)_q-R^4$ II

A is a direct bond, $-C(O)NR^5-$, $-NR^5C(O)-$, $-C(O)-$, $-NR^5-$, $-O-$, $-S-$, $-S(O)-$, $-S(O)_2-$, (C_2-C_4) -alkynediyl, (C_2-C_4) -alkenediyl, (C_5-C_{14}) -arylene where in the arylene residue one, two, three, four or five ring carbon atoms can be replaced by heteroatoms from 15 the series consisting of nitrogen, oxygen and sulfur, or a divalent residue of a 3-membered to 7-membered saturated or unsaturated ring which can contain one or two ring heteroatoms from the series consisting of nitrogen, sulfur and oxygen and which can be monosubstituted or disubstituted by residues from the series consisting of $=O$, $=S$ and R^3 ;

20

B is (C_1-C_{18}) -alkyl, (C_3-C_{14}) -cycloalkyl, (C_3-C_{14}) -cycloalkyl- (C_1-C_8) -alkyl-, (C_5-C_{14}) -aryl, (C_5-C_{14}) -aryl- (C_1-C_8) -alkyl-, (C_5-C_{14}) -heteroaryl, (C_5-C_{14}) -heteroaryl- (C_1-C_8) -alkyl-, fluorine, chlorine, bromine, hydroxy, cyano, trifluoromethyl, nitro, hydroxycarbonyl-, (C_1-C_6) -alkoxy, (C_1-C_6) -alkoxy- (C_1-C_6) -alkyl-, (C_1-C_6) -alkoxycarbonyl-, (C_1-C_6) -alkylcarbonyl-, (C_5-C_{14}) -arylcarbonyl-, (C_1-C_6) -alkylaminocarbonyl-, (C_1-C_6) -alkoxy- (C_1-C_6) -alkoxy-, (C_5-C_{14}) -aryl- (C_1-C_8) -alkylcarbonyl-, (C_1-C_6) -alkanoylamino-, (C_1-C_6) -

alkylsulfonylamino-, (C₅-C₁₄)-arylsulfonylamino-, (C₁-C₆)-alkylamino-, di-((C₁-C₆)-alkyl)amino-, (C₁-C₆)-alkylsulfonyl-, aminosulfonyl-, (C₅-C₁₄)-arylsulfonyl-, (C₅-C₁₄)-aryl-(C₁-C₈)-alkylsulfonyl-, (C₅-C₁₄)-aryl or (C₅-C₁₄)-heteroaryl, where all residues B are independent of one another and can be identical or different;

5

X is hydrogen, NR⁶R^{6'}, fluorine, chlorine, bromine, OR⁶, SR⁶, hydroxy-(C₁-C₆)-alkyl-NH-, (hydroxy-(C₁-C₆)-alkyl)₂N-, amino-(C₁-C₆)-alkyl-NH-, (amino-(C₁-C₆)-alkyl)₂N-, hydroxy-(C₁-C₆)-alkyl-O-, hydroxy-(C₁-C₆)-alkyl-S- or -NH-C(O)-R⁶;

10 Y is R⁶, fluorine, chlorine, bromine, cyano, NR⁶R^{6'}, OR⁶, SR⁶ or hydroxy-(C₁-C₆)-alkyl-NH-;

Z is N or CH;

15 R¹ and R² are hydrogen, fluorine, chlorine, cyano, nitro, (C₁-C₁₀)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-heteroaryl, (C₅-C₁₄)-heteroaryl-(C₁-C₈)-alkyl-, R⁶-O-R⁷, R⁶-S(O)_p-R⁷, R⁶S(O)₂NHR⁷, R⁶OC(O)NHR⁷ or R⁶R^{6'}N-R⁷, where all residues R¹ and R² are independent of one another and can be identical or different;

20

R³ is hydrogen, fluorine, chlorine, cyano, nitro, (C₁-C₁₈)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-heteroaryl, (C₅-C₁₄)-heteroaryl-(C₁-C₈)-alkyl-, R⁶-O-R⁷, R⁶R^{6'}N-R⁷, R⁶C(O)-O-R⁷, R⁶C(O)R⁷, R⁶OC(O)R⁷, R⁶N(R^{6'})C(O)OR⁷, R⁶S(O)_pN(R⁵)R⁷, R⁶OC(O)N(R⁵)R⁷,

25 R⁶C(O)N(R⁵)R⁷, R⁶N(R^{6'})C(O)N(R⁵)R⁷, R⁶N(R^{6'})S(O)_pN(R⁵)R⁷, R⁶S(O)_pR⁷, R⁶SC(O)N(R⁵)R⁷, R⁶N(R^{6'})C(O)R⁷ or R⁶N(R^{6'})S(O)_pR⁷, where alkyl can be mono-unsaturated or poly-unsaturated and where alkyl, cycloalkyl, aryl, and heteroaryl can be monosubstituted or polysubstituted by R⁶, fluorine, chlorine, bromine, cyano, trifluoromethyl, R⁶R^{6'}NR⁷, nitro, R⁶OC(O)R⁷, R⁶C(O)R⁷, R⁶N(R^{6'})C(O)R⁷,

30 R⁶N(R^{6'})S(O)_pR⁷ or R⁶-O-R⁷, and where all residues R³ are independent of one another and can be identical or different;

R^4 is $-C(O)R^8$, $-C(S)R^8$, $-S(O)_pR^8$, $-P(O)R^8R^{8'}$ or a residue of a 4-membered to 8-membered saturated or unsaturated heterocycle which contains 1, 2, 3 or 4 heteroatoms from the series consisting of nitrogen, oxygen and sulfur;

5

R^5 is hydrogen, (C_1-C_{10}) -alkyl, (C_3-C_{14}) -cycloalkyl, (C_3-C_{14}) -cycloalkyl- (C_1-C_8) -alkyl-, (C_5-C_{14}) -aryl or (C_5-C_{14}) -aryl- (C_1-C_8) -alkyl-, where all residues R^5 are independent of one another and can be identical or different;

10 R^6 and $R^{6'}$ are hydrogen, (C_1-C_{18}) -alkyl, (C_3-C_{14}) -cycloalkyl, (C_3-C_{14}) -cycloalkyl- (C_1-C_8) -alkyl-, (C_5-C_{14}) -aryl, (C_5-C_{14}) -aryl- (C_1-C_8) -alkyl-, (C_5-C_{14}) -heteroaryl or (C_5-C_{14}) -heteroaryl- (C_1-C_8) -alkyl- where aryl, heteroaryl, cycloalkyl and alkyl can be substituted one, two or three times by identical or different substituents from the series consisting of fluorine, chlorine, bromine, cyano, trifluoromethyl, nitro,

15 hydroxycarbonyl-, (C_1-C_6) -alkyl, (C_1-C_6) -alkoxy, (C_1-C_6) -alkoxy- (C_1-C_6) -alkyl-, (C_1-C_6) -alkoxycarbonyl-, (C_1-C_6) -alkylcarbonyl-, (C_1-C_6) -alkylaminocarbonyl-, (C_1-C_6) -alkoxy- (C_1-C_6) -alkoxy-, (C_5-C_{14}) -arylcarbonyl-, (C_5-C_{14}) -aryl- (C_1-C_8) -alkylcarbonyl-, (C_1-C_6) -alkanoylamino-, (C_5-C_{14}) -arylsulfonylamino-, (C_1-C_6) -alkylsulfonylamino-, (C_1-C_6) -alkylamino-, di- $((C_1-C_6)$ -alkyl)amino-, (C_1-C_6) -alkylsulfonyl-, (C_1-C_6) -

20 alkylaminosulfonyl-, (C_5-C_{14}) -arylamino- (C_1-C_8) -alkylaminosulfonyl-, (C_5-C_{14}) -aryl- (C_1-C_8) -alkylaminosulfonyl, (C_5-C_{14}) -arylsulfonyl-, (C_5-C_{14}) -aryl- (C_1-C_8) -alkylsulfonyl, (C_5-C_{14}) -aryl and (C_5-C_{14}) -heteroaryl, and where all residues R^6 and $R^{6'}$ are independent of one another and can be identical or different;

25 R^7 is (C_1-C_4) -alkanediyl or a direct bond, where all residues R^7 are independent of one another and can be identical or different;

R^8 and $R^{8'}$ are hydroxy, (C_1-C_8) -alkoxy, (C_5-C_{14}) -aryl- (C_1-C_8) -alkoxy-, (C_5-C_{14}) -aryloxy, (C_1-C_8) -alkylcarbonyloxy- (C_1-C_4) -alkoxy-, (C_5-C_{14}) -aryl- (C_1-C_8) -alkylcarbonyloxy- (C_1-C_8) -alkoxy-, $NR^6R^{6'}$, (di- $((C_1-C_8)$ -alkyl)amino)carbonylmethoxy-, (di- $((C_5-C_{14})$ -aryl- (C_1-C_8) -alkyl)amino)carbonylmethoxy-, (C_5-C_{14}) -arylamino-, the residue of an amino acid, $N-((C_1-C_4)$ -alkyl)-piperidin-4-yloxy-, 2-methylsulfonylethoxy-

, 1,3-thiazol-2-ylmethoxy-, 3-pyridylmethoxy-, 2-(di-((C₁-C₄)-alkyl)amino)-ethoxy or the residue Q⁻ (CH₃)₃N⁺-CH₂-CH₂-O- in which Q⁻ is a physiologically tolerable anion, where all residues R⁸ and R^{8'} are independent of one another and can be identical or different;

5

n is zero, one, two, three, four or five;

m is zero, one, two, three, four or five;

i is zero or one;

q is zero, one or two;

10 r is zero, one or two;

s is zero, one, two or three;

t is zero, one, two, three, four, five, six, seven or eight;

p is zero, one or two, where all numbers p are independent of one another and can be identical or different;

15

in all their stereoisomeric forms and mixtures thereof in all ratios, and their physiologically tolerable salts and their prodrugs;

where, instead of the purine structure shown in formula I, also a 3-deazapurine 20 structure, a 7-deazapurine structure or a 7-deaza-8-azapurine structure can be present.

2. A compound of the formula I as claimed in claim 1, in which

25 G is a residue of the formula II



A is a direct bond, -C(O)NR⁵-, -NR⁵C(O)-, -C(O)-, -NR⁵-, -O-, -S-, -S(O)-, -S(O)₂-, (C₂-C₄)-alkynediyl, (C₂-C₄)-alkenediyl, (C₅-C₁₄)-arylene where in the arylene residue one, two, three, four or five ring carbon atoms can be replaced by heteroatoms from the series consisting of nitrogen, oxygen and sulfur, or a divalent residue of a 3-

membered to 7-membered saturated or unsaturated ring which can contain one or two ring heteroatoms from the series consisting of nitrogen, sulfur and oxygen and which can be monosubstituted or disubstituted by residues from the series consisting of =O, =S and R³;

5

B is (C₁-C₁₂)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-heteroaryl, (C₅-C₁₄)-heteroaryl-(C₁-C₈)-alkyl-, fluorine, chlorine, bromine, hydroxy, cyano, trifluoromethyl, nitro, hydroxycarbonyl-, (C₁-C₆)-alkoxy, (C₁-C₆)-alkoxy-(C₁-C₆)-alkyl-, (C₁-C₆)-alkylcarbonyl-, (C₅-C₁₄)-

10 arylcarbonyl-, (C₅-C₁₄)-aryl-(C₁-C₈)-alkylcarbonyl- (C₁-C₆)-alkylaminocarbonyl-, (C₁-C₆)-alkanoylamino-, (C₁-C₆)-alkylsulfonylamino-, (C₅-C₁₄)-arylsulfonylamino-, (C₁-C₆)-alkylamino-, di-((C₁-C₆)-alkyl)amino-, (C₁-C₆)-alkylsulfonyl-, (C₅-C₁₄)-arylsulfonyl-, (C₅-C₁₄)-aryl-(C₁-C₈)-alkylsulfonyl-, (C₅-C₁₄)-aryl or (C₅-C₁₄)-heteroaryl, where all residues B are independent of one another and can be identical or different;

15

X is hydrogen, NH₂, -NH-C(O)-R⁶ or OH;

Y is hydrogen;

20 Z is N;

R¹ and R² independently of one another are hydrogen, fluorine, chlorine, cyano, nitro, (C₁-C₁₀)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-heteroaryl, (C₅-C₁₄)-heteroaryl-(C₁-C₈)-alkyl-,

25 R⁶-O-R⁷, R⁶S(O)₂NHR⁷, R⁶OC(O)NHR⁷ or R⁶R^{6'}N-R⁷, where all residues R¹ and R² are independent of one another and can be identical or different;

R³ is hydrogen, fluorine, chlorine, cyano, nitro, (C₁-C₁₈)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-heteroaryl, (C₅-C₁₄)-heteroaryl-(C₁-C₈)-alkyl-, R⁶-O-R⁷, R⁶R^{6'}N-R⁷, R⁶C(O)-O-R⁷, R⁶C(O)R⁷, R⁶OC(O)R⁷, R⁶N(R^{6'})C(O)OR⁷, R⁶S(O)_pN(R⁵)R⁷, R⁶OC(O)N(R⁵)R⁷, R⁶C(O)N(R⁵)R⁷, R⁶N(R^{6'})C(O)N(R⁵)R⁷, R⁶N(R^{6'})S(O)_pN(R⁵)R⁷, R⁶S(O)_pR⁷,

$R^6SC(O)N(R^5)R^7$, $R^6N(R^{6'})C(O)R^7$ or $R^6N(R^{6'})S(O)_pR^7$, where alkyl can be mono-unsaturated or poly-unsaturated and where alkyl, cycloalkyl, aryl and heteroaryl can be monosubstituted or polysubstituted by R^6 , fluorine, chlorine, bromine, cyano, trifluoromethyl, $R^6R^{6'}NR^7$, nitro, $R^6OC(O)R^7$, $R^6C(O)R^7$, $R^6N(R^{6'})C(O)R^7$,

5 $R^6N(R^{6'})S(O)_pR^7$ or R^6-O-R^7 , and where all residues R^3 are independent of one another and can be identical or different;

R^4 is $-C(O)R^8$ or $-P(O)R^8R^{8'}$;

10 R^5 is hydrogen, (C_1-C_{10}) -alkyl, (C_3-C_{14}) -cycloalkyl, (C_3-C_{14}) -cycloalkyl- (C_1-C_8) -alkyl- or (C_5-C_{14}) -aryl- (C_1-C_8) -alkyl-, where all residues R^5 are independent of one another and can be identical or different;

15 R^6 and $R^{6'}$ are hydrogen, (C_1-C_{12}) -alkyl, (C_3-C_{14}) -cycloalkyl, (C_3-C_{14}) -cycloalkyl- (C_1-C_8) -alkyl-, (C_5-C_{14}) -aryl, (C_5-C_{14}) -aryl- (C_1-C_8) -alkyl-, (C_5-C_{14}) -heteroaryl or (C_5-C_{14}) -heteroaryl- (C_1-C_8) -alkyl- where aryl, heteroaryl, cycloalkyl and alkyl can be substituted one, two or three times by identical or different substituents from the series consisting of fluorine, chlorine, bromine, cyano, trifluoromethyl, nitro, hydroxycarbonyl-, (C_1-C_6) -alkyl, (C_1-C_6) -alkoxy, (C_1-C_6) -alkoxy- (C_1-C_6) -alkyl-, (C_5-C_{14}) -arylcarbonyl-, (C_5-C_{14}) -aryl- (C_1-C_6) -alkylcarbonyl-, (C_1-C_6) -alkanoylamino-, (C_5-C_{14}) -arylsulfonylamino-, (C_1-C_6) -alkylsulfonylamino-, (C_1-C_6) -alkylamino-, di- $((C_1-C_6)$ -alkyl)amino-, (C_1-C_6) -alkylsulfonyl-, (C_5-C_{14}) -aryl and (C_5-C_{14}) -heteroaryl, and where all residues R^6 and $R^{6'}$ are independent of one another and can be identical or different;

25

R^7 is (C_1-C_4) -alkanediyil or a direct bond, where all residues R^7 are independent of one another and can be identical or different;

30 R^8 and $R^{8'}$ are hydroxy, (C_1-C_8) -alkoxy, (C_5-C_{14}) -aryl- (C_1-C_8) -alkoxy-, (C_1-C_8) -alkylcarbonyloxy- (C_1-C_4) -alkoxy- or $NR^6R^{6'}$ where all residues R^8 and $R^{8'}$ are independent of one another and can be identical or different;

n is zero, one, two, three, four or five;

m is zero, one, two, three, four or five;

i is zero or one;

5 q is zero, one or two;

r is zero, one or two;

s is zero, one, two or three;

t is zero, one, two, three, four, five, six, seven or eight;

p is zero, one or two, where all numbers p are independent of one another and can

10 be identical or different;

in all their stereoisomeric forms and mixtures thereof in all ratios, and their physiologically tolerable salts and their prodrugs.

15 3. A compound of the formula I as claimed in claims 1 and/or 2, in which

G is a residue of the formula II



20

A is a direct bond, -C(O)NR⁵-, -NR⁵C(O)-, -C(O)-, -NR⁵- or (C₅-C₁₄)-arylene where in the arylene residue one or two ring carbon atoms can be replaced by heteroatoms from the series consisting of nitrogen, oxygen and sulfur;

25 B is (C₁-C₆)-alkyl, chlorine, hydroxy, cyano, trifluoromethyl, (C₁-C₆)-alkoxy, (C₁-C₆)-alkylcarbonyl-, (C₁-C₆)-alkanoylamino-, (C₁-C₆)-alkylamino- or di-((C₁-C₆)-alkyl)amino-, where all residues B are independent of one another and can be identical or different;

30 X is hydrogen;

Y is hydrogen;

Z is N;

R¹ and R² are hydrogen, (C₁-C₄)-alkyl, R⁶S(O)₂NHR⁷ or R⁶OC(O)NHR⁷, where all

5 residues R¹ and R² are independent of one another and can be identical or different;

R³ is hydrogen, (C₁-C₁₂)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-C₆)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₆)-alkyl-, (C₅-C₁₄)-heteroaryl, (C₅-C₁₄)-heteroaryl-(C₁-C₆)-alkyl-, R⁶R^{6'}N-R⁷, R⁶S(O)₂N(R⁵)R⁷, R⁶OC(O)N(R⁵)R⁷ or R⁶C(O)N(R⁵)R⁷, where

10 alkyl can be mono-unsaturated or poly-unsaturated and where alkyl, cycloalkyl, aryl and heteroaryl can be monosubstituted or polysubstituted by R⁶, fluorine, chlorine, trifluoromethyl, R⁶C(O)R⁷ or R⁶-O-R⁷;

R⁴ is -C(O)R⁸;

15

R⁵ is hydrogen or (C₁-C₄)-alkyl, where all residues R⁵ are independent of one another and can be identical or different;

R⁶ and R^{6'} are hydrogen, (C₁-C₁₂)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-

20 C₈)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-heteroaryl or (C₅-C₁₄)-heteroaryl-(C₁-C₈)-alkyl- where aryl, heteroaryl, cycloalkyl and alkyl can be

substituted one, two or three times by identical or different substituents from the series consisting of fluorine, chlorine, bromine, cyano, trifluoromethyl, (C₁-C₆)-alkyl, (C₁-C₆)-alkoxy, (C₁-C₆)-alkylamino-, di-((C₁-C₆)-alkyl)amino-, (C₅-C₁₄)-aryl and (C₅-

25 C₁₄)-heteroaryl, and where all residues R⁶ and R^{6'} are independent of one another and can be identical or different;

R⁷ is (C₁-C₂)-alkanediyyl or a direct bond, where all residues R⁷ are independent of one another and can be identical or different;

30

R⁸ is hydroxy or (C₁-C₆)-alkoxy;

n is zero, one, two, three, four or five;

m is zero or one;

i is zero or one;

q is zero or one;

5 r is zero or one;

s is zero, one or two;

t is zero, one, two, three or four;

in all their stereoisomeric forms and mixtures thereof in all ratios, and their

10 physiologically tolerable salts and their prodrugs.

4. A compound of the formula I as claimed in one or more of claims 1 to 3, in which

G is a residue of the formula II

15



A is a direct bond;

20 B is (C₁-C₆)-alkyl or hydroxy, where all residues B are independent of one another and can be identical or different;

X is hydrogen;

25 Y is hydrogen;

Z is N;

30 R¹ and R² are hydrogen, (C₁-C₄)-alkyl, R⁶S(O)₂NHR⁷ or R⁶OC(O)NHR⁷, where all residues R¹ and R² are independent of one another and can be identical or different;

R^3 is hydrogen, $(C_1\text{-}C_{12})\text{-alkyl}$, $(C_3\text{-}C_{14})\text{-cycloalkyl}$, $(C_3\text{-}C_{14})\text{-cycloalkyl-}(C_1\text{-}C_6)\text{-alkyl-}$, $(C_5\text{-}C_{14})\text{-aryl}$, $(C_5\text{-}C_{14})\text{-aryl-}(C_1\text{-}C_6)\text{-alkyl-}$, $(C_5\text{-}C_{14})\text{-heteroaryl}$, $(C_5\text{-}C_{14})\text{-heteroaryl-}(C_1\text{-}C_6)\text{-alkyl-}$, $R^6R^6'\text{N-}R^7$, $R^6\text{S(O)}_2\text{N}(R^5)R^7$, $R^6\text{OC(O)N}(R^5)R^7$ or $R^6\text{C(O)N}(R^5)R^7$, where alkyl can be mono-unsaturated or poly-unsaturated and where alkyl, cycloalkyl, aryl and heteroaryl can be monosubstituted or polysubstituted by R^6 , fluorine, chlorine, trifluoromethyl, $R^6\text{C(O)R}^7$ or $R^6\text{-O-}R^7$;

R^4 is $-\text{C(O)R}^8$;

10 R^5 is hydrogen or $(C_1\text{-}C_4)\text{-alkyl}$;

R^6 and R^6' are hydrogen, $(C_1\text{-}C_{12})\text{-alkyl}$, $(C_3\text{-}C_{14})\text{-cycloalkyl}$, $(C_3\text{-}C_{14})\text{-cycloalkyl-}(C_1\text{-}C_8)\text{-alkyl-}$, $(C_5\text{-}C_{14})\text{-aryl}$, $(C_5\text{-}C_{14})\text{-aryl-}(C_1\text{-}C_8)\text{-alkyl-}$, $(C_5\text{-}C_{14})\text{-heteroaryl}$ or $(C_5\text{-}C_{14})\text{-heteroaryl-}(C_1\text{-}C_8)\text{-alkyl-}$ where aryl, heteroaryl, cycloalkyl and alkyl can be substituted one, two or three times by identical or different substituents from the series consisting of fluorine, chlorine, bromine, cyano, trifluoromethyl, $(C_1\text{-}C_6)\text{-alkyl}$, $(C_1\text{-}C_6)\text{-alkoxy}$, $(C_1\text{-}C_6)\text{-alkylamino-}$, di- $((C_1\text{-}C_6)\text{-alkyl})\text{amino-}$, $(C_5\text{-}C_{14})\text{-aryl}$ and $(C_5\text{-}C_{14})\text{-heteroaryl}$, and where all residues R^6 and R^6' are independent of one another and can be identical or different;

20

R^7 is a direct bond;

R^8 is hydroxy or $(C_1\text{-}C_4)\text{-alkoxy}$;

25 n is zero, one or two;

m is zero or one;

i is zero or one;

q is zero or one;

r is zero or one;

30 s is zero, one or two;

t is zero;

in all their stereoisomeric forms and mixtures thereof in all ratios, and their physiologically tolerable salts and their prodrugs.

5. A compound of the formula I as claimed in one or more of claims 1 to 4, which is a

5 G is a residue of the formula II



10 A is a direct bond;

X is hydrogen;

Y is hydrogen;

15

Z is N;

R¹ and R² are hydrogen or (C₁-C₂)-alkyl, where all residues R¹ and R² are independent of one another and can be identical or different;

20

R³ is R⁶R^{6'}N-R⁷, R⁶S(O)₂N(R⁵)R⁷, R⁶OC(O)N(R⁵)R⁷ or R⁶C(O)N(R⁵)R⁷;

R⁴ is -C(O)R⁸;

25 R⁵ is hydrogen or (C₁-C₂)-alkyl;

R⁶ and R^{6'} are hydrogen, (C₁-C₁₂)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-heteroaryl or (C₅-C₁₄)-heteroaryl-(C₁-C₈)-alkyl- where aryl, heteroaryl, cycloalkyl and alkyl can be substituted one, two or three times by identical or different substituents from the series consisting of fluorine, chlorine, bromine, cyano, trifluoromethyl, (C₁-C₆)-alkyl, (C₁-C₆)-alkoxy, (C₁-C₆)-alkylamino-, di-((C₁-C₆)-alkyl)amino-, (C₅-C₁₄)-aryl and (C₅-

C_{14})-heteroaryl, and where the residues R^6 and R^6' are independent of one another and can be identical or different;

R^7 is a direct bond;

5

R^8 is hydroxy or (C_1-C_4) -alkoxy;

n is zero, one or two;

m is zero or one;

10 i is zero or one;

q is zero or one;

r is zero;

s is zero;

t is zero;

15

in all their stereoisomeric forms and mixtures thereof in all ratios, and their physiologically tolerable salts and their prodrugs

6. A compound of the formula I as claimed in one or more of claims 1 to 5, which is a

20

G is a residue of the formula II



25 A is a direct bond;

X is hydrogen;

Y is hydrogen;

30

Z is N;

R¹ and R² are hydrogen;

R³ is R⁶S(O)₂N(R⁵)R⁷ or R⁶OC(O)N(R⁵)R⁷;

5 R⁴ is -C(O)R⁸;

R⁵ is hydrogen;

10 R⁶ is (C₁-C₁₂)-alkyl, (C₃-C₁₄)-cycloalkyl, (C₃-C₁₄)-cycloalkyl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-aryl, (C₅-C₁₄)-aryl-(C₁-C₈)-alkyl-, (C₅-C₁₄)-heteroaryl or (C₅-C₁₄)-heteroaryl-(C₁-C₈)-alkyl- where aryl, heteroaryl, cycloalkyl and alkyl can be substituted one, two or three times by identical or different substituents from the series consisting of fluorine, chlorine, bromine, cyano, trifluoromethyl, (C₁-C₆)-alkyl, (C₁-C₆)-alkoxy, (C₁-C₆)-alkylamino-, di-((C₁-C₆)-alkyl)amino-, (C₅-C₁₄)-aryl and (C₅-C₁₄)-heteroaryl;

15

R⁷ is a direct bond;

R⁸ is hydroxy or (C₁-C₄)-alkoxy;

20 n is one;

m is zero;

i is one;

q is zero;

r is zero;

25 s is zero;

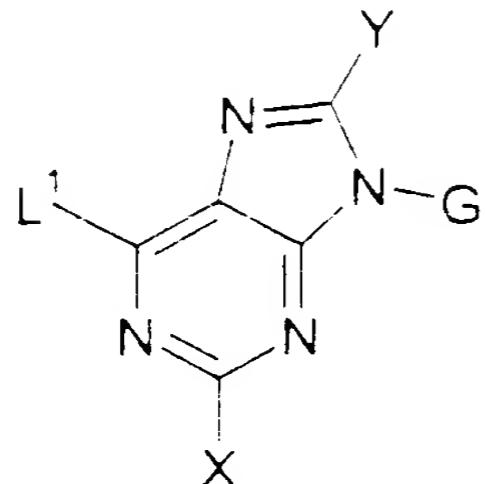
t is zero;

in all their stereoisomeric forms and mixtures thereof in all ratios, and their physiologically tolerable salts and their prodrugs

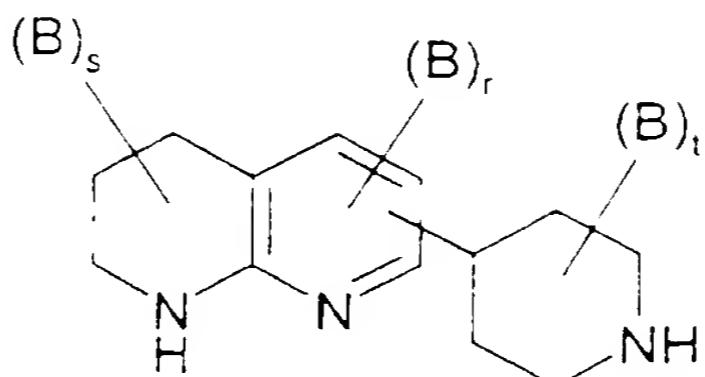
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7. A process for the preparation of a compound as claimed in one or more of claims 1 to 6, comprising reacting a compound of the formula VI with a compound of the

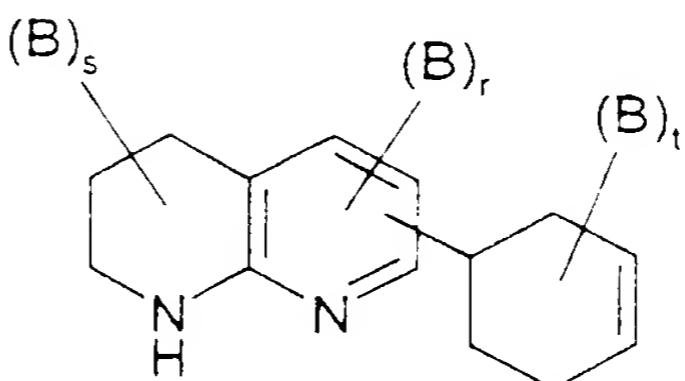
formula VIIa or with a compound of the formula VIIb



VI



VIIa



VIIb

5 wherein L¹ is a leaving group and B, G, X, Y, r, s and t are defined as in claims 1 to 6 but wherein functional groups can also be present in the form of precursor groups or in protected form.

8. A pharmaceutical composition, comprising at least one compound of the formula I
10 as claimed in one or more of claims 1 to 6 and/or its physiologically tolerable salts and/or its prodrugs and a pharmaceutically acceptable carrier.

9. A compound of the formula I as claimed in one or more of claims 1 to 6 and/or its physiologically tolerable salts and/or its prodrugs for use as a vitronectin receptor
15 antagonist.

10. A compound of the formula I as claimed in one or more of claims 1 to 6 and/or its physiologically tolerable salts and/or its prodrugs for use as an inhibitor of bone resorption, for the therapy or prophylaxis of osteoporosis, as an inhibitor of tumor growth or tumor metastasis, as an antiinflammatory, or for the therapy or prophylaxis of cardiovascular disorders, restenoses, arteriosclerosis, nephropathies, retinopathies, psoriasis or rheumatoid arthritis.